Claims

1. Composite shaped block (1) exhibiting an upper slab (2) as a covering layer, and a support element (3) manufactured by a shaping process, with head face (4), wherein

- the upper slab (2) and the support element (3) are permanently connected by the head face (4) of the support element,
- the support element (3) is provided on the head face (4) with a agglomerant applied and solidified, and
- the head face (4) of the support element (3) is designed in the shape of a trough to receive the agglomerant.

2. Composite shaped block according to Claim 1, characterised in that the upper slab (2) exhibits a thickness of 0.5 to 3 cm and, independently of this, the base face (7) of the upper slab (2) forms a planar surface and, in particular, head (6) and base face (7) of the upper slab (2) form an essentially plane-parallel surface.

3. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) of the support element (3) stamped so that it is trough-shaped exhibits several convex partial support faces (14) as contact supports in the surface clamped by the outer edge (11).

4. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) stamped in the shape of a trough exhibits partial support faces (14) with supporting faces aligned plane-parallel with the base face (7) of the upper slab.

5. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) stamped in the shape of a trough exhibits partial support faces (14) designed according to one or more of the three alternatives:

- partial support faces (14) are roughly as high as the edge support surface (15),
- partial support faces (14) are preferably a maximum of 6 mm, and in particular a maximum of 2 mm higher than the edge support surface (15),
- partial support faces (14) are a maximum of 2 mm lower than the edge support surfaces (15).

6. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) stamped in the shape of a trough exhibits partial support face (14), wherein at least 4 of the partial support faces (14) maintain between them at least a distance which is greater than 1/3 of the longest edge distance, and at least each of the 4 partial support faces (14) lies in one of four coherent partial surfaces of the same size as the trough surface, and wherein, as a further preference, each of the 4 partial support surfaces (14) has a distance of at least 1/3 of the longest edge distance from the edge (11).

7. Composite shaped block according to at least one of the preceding claims, characterised in that the base face (7) of the upper slab (2) is smaller in area than the head face (4) of the support element (3).

8. Composite shaped block according to at least one of the preceding claims, characterised in that the support element (3) exhibits a thickness of 2 to 20 cm and, independently of this, the head (4) and base face (8) of the support element form essentially plane-parallel surfaces.

9. Composite shaped block according to at least one of the preceding claims, characterised in that the set agglomerant forms an intermediate layer between support element (3) and upper slab (2), which layer is limited outwardly and essentially on all sides by the support element (3) and upper slab (2).

10. Composite shaped block according to at least one of the preceding claims, characterised in that adjacent lateral walls (10) of the composite shaped block in the region of the corners of the support element exhibit cams (18) which lie at a distance from the lateral walls (10), in their extent, of at least the length of the excess length of the upper slab (2) in the corner in order to serve as a further support face and/or impact protection, and in that the cams (18) project preferably by an average of a maximum of 5 mm, preferably a maximum of 3 mm from the surface perpendicular on the lateral wall (10).

11. Composite shaped block according to at least one of the preceding claims, characterised in that the lateral walls (10) of the composite shaped block, preferably in the region of the support element (3), exhibit cams (18) or spacers and, optionally, also recesses.

12. Composite shaped block according to at least one of the preceding claims, characterised in that the support element (3) forms the lower bearing course of the composite shaped block (1) in the position of use.

13. Composite shaped block according to at least one of the preceding claims, characterised in that the support element (3) is manufactured from a material that can be shaken, sprinkled or is able to flow, by means of a shaping process, and in that the material consists of plastic, concrete, metal, wood, clay/ceramic or their mixtures, preferably concrete.

14. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) of the support element is designed to form a support face (13) for the upper slab (2), wherein the head face (6) exhibits a convex edge running on the outside along the upper edge of the lateral face (9) of the support element, in order to form one or more troughs for receiving the agglomerant, and wherein the upper edge surface (12) forms a support face (13) essentially plane-parallel to the base face (8).

15. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) clamps, inside the peripheral convex edge (11), a surface which exhibits several inner, optionally also punctiform, partial support faces (14) for the upper slab (2), wherein the partial support faces (14) are designed so that they are no higher than the edge support faces (15), preferably the same height.

16. Composite shaped block, according to at least one of the preceding claims, characterised in that the support element (3) is provided with further cavities (16) extending from the head face (4) in the direction of the base face , preferably down to a depth of 2/3 of the total thickness of the support element (3), wherein, independently of this, the total volume of all the recesses/cavities (16, 17) constitutes preferably 5 to 75% of the total volume of the support element (3).

17. Composite shaped block according to at least one of the preceding claims, characterised in that the upper slab (2) consists of fine vitrified clay, ceramic, materials such as glass, wood, rubber etc. and/or natural stone.

18. Composite shaped block according to at least one of the preceding claims, characterised in that in addition to water and rock grains, the agglomerant (5) contains at least one binder, wherein at least one binder is an aqueous polymer dispersion which is preferably produced using styrene and/or butadiene units as monomers, and exhibits a polar monomer or polar groups, and the binder preferably also incorporates a cement and sets on contact with moisture.

19. Composite shaped block according to at least one of the preceding claims, characterised in that the agglomerant (5) has a pasty consistency.

20. Composite shaped block according to at least one of the preceding claims, characterised in that the head face (4) exhibits a trough shape and the peripheral convex edge (11) exhibits openings, preferably 1 to 3 openings for the defined discharge of excess agglomerant (5) spaced every 10 cm of the lateral face of the support element (9).

21. Method for manufacturing composite shaped blocks (1) exhibiting an upper slab (2) as the top covering layer and a support element (3) exhibiting a head face (4) and manufactured by a shaping process, wherein the upper slab (2) and the support element (3) are permanently connected by the head face (4) of the support element and the head face (4) of the support element has a trough shape for receiving the agglomerant, and wherein the method comprises the following steps:

- pouring concrete into a mould frame, corresponding to one or more of the support elements to be manufactured,
- trough-shaped contouring of the head face (4) of the support element by a negative mould, wherein the negative mould is a contoured die or a contoured base plate of the mould frame, or by a milling process or drilling process, optionally associated with the insertion of spacers,
- application of the pasty agglomerant (5) to the head face (4) of the support
- element (3), and
- aligned, precise bringing together of the upper slab (2) and the support face (13) formed by the head face (4) of the support element.

22. Method for manufacturing composite shaped blocks according to Claim 21, characterised in that, in addition, several cavities (16, 17) extending in the direction of the base face (7) are produced by the die and/or by shapes in the mould frame,

and in that they are introduced or produced preferably by pins mounted on the die face or by pulling or insert devices on the die and/or mould frame.

23. Method for manufacturing composite shaped blocks according to Claim 21 and 22, characterised in that several partial support faces (14) extending from the base face (7) are produced by cavities in the die surface.

24. Method for manufacturing composite shaped blocks according to at least one of Claims 21 to 23, characterised in that the step of applying the pasty agglomerant to the head face (4) of the support element is carried out by means of dosing nozzles, in particular a slotted nozzle, flatly, preferably in the form of flat beads, or defined points, in particularly flatly in the form of a cuboid having a height of 2 mm to 5 mm, in particular 2.5 mm to 3 mm, and/or in that the area peripherally around the edge support faces (15) is smaller than the head face of the support element..

25. Method for manufacturing composite shaped blocks according to at least one of Claims 21 to 24, characterised in that the step of installing the upper slab (2) takes place at least in the region of approach where it is brought into contact with the pasty agglomerant, with light essentially horizontal backward and forward movement along the axis of approach (vertical vibratory movements), and optionally with additional horizontal vibrator movements.

26. Method for manufacturing composite shaped blocks according to at least one of Claims 21 to 25, characterised in that the step of installing the upper slab (2) is carried out by a grab, in particular a strainer grab, which preferably also performs the functions of centring, vibrating with adjustable force and/or pressing with a defined adjustable force..

27. Method for manufacturing composite shaped blocks according to at least one of Claims 21 to 26, characterised in that the upper slab (2), agglomerant and/or support element (3) are also defined in terms of its head face (6) according to one of Claims 1 to 20.
